

In the Claims


Please cancel claims 19-52 without prejudice, amend the claims and add claims 53-62 as follows:

1. (Amended) A method of forming a capacitor comprising:
forming a capacitor storage node layer over a substrate, the capacitor storage node layer having an uppermost rim defining an opening into an interior volume; and

forming a cap by capping at least a portion of the rim within the interior volume by forming a material which is different from the capacitor storage node layer over the rim portion, said material as received at least over the rim portion not functioning primarily as a capacitor dielectric material for the capacitor.

2. The method of claim 1, wherein the capping of the rim portion comprises forming an insulative material thereover.

3. The method of claim 1, wherein the capping of the rim portion comprises forming an insulative material within less than an entirety of the interior volume.



4. The method of claim 1, wherein the capping of the rim portion comprises forming an insulative material layer over the substrate and anisotropically etching the insulative material layer.

5. The method of claim 1 further comprising prior to the capping of the rim portion, filling less than the interior volume with a filler material which is present during the capping.

6. The method of claim 1 further comprising prior to the capping of the rim portion, filling less than the interior volume with a filler material which is present during the capping, and wherein the capping of the rim portion comprises forming an insulative material layer over the substrate and the filler material and anisotropically etching the layer.

7. The method of claim 1, wherein the forming of the capacitor storage node layer comprises:

forming a container into a container-defining material over the substrate;

forming a capacitor storage node layer within the container; and

recessing the capacitor storage node layer to below an uppermost surface of the container-defining material.



8. The method of claim 7, wherein the capacitor storage node layer comprises roughened polysilicon.

9. The method of claim 1, wherein the forming of the capacitor storage node layer comprises:

forming a container into a container-defining material over the substrate;

forming a capacitor storage node layer within the container;

recessing the capacitor storage node layer to below an uppermost surface of the container-defining material; and

after the capping of the rim portion, removing at least some of the container-defining material.

10. The method of claim 9, wherein the removing of the container-defining material comprises removing said container-defining material selectively relative to the capping material which is formed over the rim portion.

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recessing the capacitor storage node layer to below an uppermost surface of the container-defining material; and

12. The method of claim 1, wherein the forming of the capacitor storage node layer comprises:

forming a capacitor storage node layer within the container;

further comprising prior to the capping of the rim portion, filling less than the interior volume with a filler material.

13. The method of claim 1, wherein the forming of the capacitor storage node layer comprises:

forming a container into a container-defining material over the substrate;

forming a capacitor storage node layer within the container;

recessing the capacitor storage node layer to below an uppermost surface of the container-defining material; and

further comprising prior to the capping of the rim portion, filling less than the interior volume with a filler material, and


wherein the capping of the rim portion comprises forming an insulative material layer over the substrate and the filler material and anisotropically etching the insulative material layer.

14. (Amended) A method of forming a capacitor comprising:

forming a capacitor storage node layer over a substrate, the capacitor storage node layer having an uppermost rim defining an opening into an interior volume; and

forming a layer of material over the uppermost rim within the interior volume.

15. (Amended) The method of claim 14, further comprising anisotropically etching said layer sufficient to leave a portion of the material occluding the opening.



16. (Amended) The method of claim 14, further comprising anisotropically etching said layer sufficient to leave a portion of the material extending into the interior volume.

17. (Amended) The method of claim 14, further comprising anisotropically etching said layer sufficient to leave a portion of the material extending into the interior volume and occluding the opening.

18. The method of claim 14, wherein the forming of the layer of material comprises forming a portion of said layer to contact the storage node layer.

New Claims

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53. The method of claim 1, further comprising, after capping the rim, forming a capacitor dielectric region and a cell electrode layer over the capacitor storage node layer within the interior volume.

54. The method of claim 14, further comprising anisotropically etching the layer of material.

55. A method of forming a capacitor comprising:
forming a capacitor storage node layer comprising roughened polysilicon over a substrate, the capacitor storage node layer having an uppermost rim defining an opening into an interior volume;
forming an insulative cap by capping at least a portion of the rim within the interior volume by forming a material which is different from the capacitor storage node layer over the rim portion, said material as received at least over the rim portion not functioning primarily as a capacitor dielectric material for the capacitor; and
after the capping of the rim, forming a capacitor dielectric region and a cell electrode layer over the capacitor storage node layer.

56. The method of claim 55, wherein capping comprises forming an insulative material within less than an entirety of the interior volume.

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57. The method of claim 55, wherein capping comprises forming an insulative material layer over the substrate and anisotropically etching the insulative material layer.

58. The method of claim 55, further comprising, prior to capping, filling less than the interior volume with a filler material which is present during capping.

59. The method of claim 55, further comprising, prior to capping, filling less than the interior volume with a filler material which is present during capping, and wherein capping comprises forming an insulative material layer over the substrate and the filler material and anisotropically etching the layer.

60. The method of claim 55, wherein forming the capacitor storage node layer comprises:

forming a container into a container-defining material over the substrate;

forming the capacitor storage node layer within the container; and

recessing the capacitor storage node layer to below an uppermost surface of the container-defining material.

61. The method of claim 55, wherein forming the capacitor storage node layer comprises:

forming a container into a container-defining material over the substrate;

forming the capacitor storage node layer within the container;

recessing the capacitor storage node layer to below an uppermost surface of the container-defining material; and

after capping, removing at least some of the container-defining material.

62. The method of claim 61, wherein removing the container-defining material comprises removing said container-defining material selectively relative to the capping material which is formed over the rim portion.